

KPR-T3229A-RE

Serial No. 10/655,988

Markings show differences between previously issued claims and newly allowed reissue claims.

1. A polymer composition, produced by the steps of: reacting one or more compounds with the terminal functional groups on a polymer, and said polymer consists essentially of:

polymerized 1,3-butadiene having a peak molecular weight between 500 and 20,000, 1,2-addition between 30% and 70%, and hydrogenation of at least 90% of the unsaturation; a ratio of viscosity (in poise at room temperature) to peak molecular weight raised to the 3.4 power of at most 2.0 times 10⁻⁹; and

[one]about two or more terminal functional groups per molecule.

2. The polymer composition of claim [1]6, wherein the terminal functional groups of the polymer are selected from [a]the group consisting of hydroxyl, carboxyl, phenol, epoxy, and amine groups.

3. Canceled.

4. The polymer composition of claim [3]6, wherein the polymerized 1,3-butadiene has a peak molecular weight between 1,000 and 10,000.

5. The polymer composition of claim 4, wherein the polymerized 1,3-butadiene is at least 95% hydrogenated.

6. The polymer composition of claim [5]1, wherein the ratio of viscosity to peak molecular weight raised to the 3.4 power of the polymer is less than 1.0 [x]times 10⁻⁹.

7. The polymer composition of claim 6, wherein the terminal functional groups of the polymer consist of about two hydroxyl groups per molecule.

8. The polymer composition of claim 1, wherein the peak molecular weight of the polymer is between 1000 and 10000.
9. The polymer composition of claim [8]6, wherein the 1,2-addition of the polymerized 1,3-butadiene is between 40% and 60%.
10. The polymer composition of claim 1, wherein the polymerized 1,3-butadiene has about two hydroxyl groups per molecule.
11. The [polymeric]polymer composition of claim 10, wherein the polymerized 1,3-butadiene is reacted with compounds that form a coating.
12. The [polymeric]polymer composition of claim 10, wherein the polymerized 1,3-butadiene is reacted with compounds that form a block selected from the group consisting of polyesters, polyamides, and polycarbonates.
13. The polymer composition of claim 8 wherein the polymer has a peak molecular weight of about 10,000.
14. The polymer composition of claim 8 wherein the polymer has a peak molecular weight of about 5,000.
15. The polymer composition of claim 8 wherein the polymer has a peak molecular weight of about 3,000.
16. The polymer composition of claim 8 wherein the polymer has a peak molecular weight of about 2,000.
17. The polymer composition of claim 4 wherein the polymer has a peak molecular weight of about 10,000.

18. The polymer composition of claim 4 wherein the polymer has a peak molecular weight of about 5,000.

19. The polymer composition of claim 4 wherein the polymer has a peak molecular weight of about 3,000.

20. The polymer composition of claim 4 wherein the polymer has a peak molecular weight of about 2,000.

Claims 21-23 Cancelled.

24. The polymer composition of claim 1 wherein the polymerized 1,3-butadiene has 1.7 terminal functional groups per molecule.

25. The polymer composition of claim 1 wherein the polymerized 1,3-butadiene has 1.9 terminal functional groups per molecule.